Chemical control of unwanted target organisms is a common practice in agricultural, recreational, and suburban areas throughout the United States. Non-target organisms within freshwater ecosystems can then be exposed to a variety of these chemicals at low doses. The use of the herbicide Atrazine (ATZ), a common chemical pollutant found in freshwater, is known to result in endocrine disruption in organisms. Crayfish, non-target organisms, are abundant throughout freshwater streams and are likely exposed to ATZ. Previous findings (Chandler et al. 2017) involving a range of concentrations from 0.5-50.0 µg/L revealed an increase in tissue degradation as ATZ concentration increased. In the most recent experiment, a sample of thirty-two juvenile male crayfish were collected from a Central Virginia stream and exposed to low-dose ATZ concentrations (0.05, 0.5, and 5.0 µg/L) for five months. On average, 70% of the crayfish survived for assessment of the effects of ATZ on growth and development. Carapace length (CL), total length (TL), and blotted wet mass (BWM) were collected at monthly intervals over the course of the study to assess the effect of ATZ on crayfish growth. Reproductive tissue will be removed from the crayfish for assessment of tissue degradation due to ATZ endocrine disruption. H&E and DAPI staining techniques will be used. Based on previous findings at higher ATZ doses (5.0-50.0 µg/L), it is expected that reproductive tissue will manifest observable differences between control and experimental groups (e.g. tissue degradation) from low dose (0.05-5.0 µg/L) ATZ exposure. Findings may be used to further develop best practices in relation to how chemical use effects both target and non-target organisms.